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(54) **CLIMATE MANAGEMENT TOPPER WITH SHAPE CHANGE ACTUATORS FOR REGULATING COOLANT DISTRIBUTION**

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(58) **Field of Classification Search**

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See application file for complete search history.

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(57) **ABSTRACT**

One embodiment of a climate management topper includes a flowpath boundary which defines a flowpath adapted to carry a stream of fluid in a principal direction. A flow compliant filler occupies at least part of the flowpath. The filler includes a spacer and a set of shape change actuators (SCA's) each of which is made of a shape change material (SCM). The properties of the SCM include a critical temperature T**0**. The SCA's are configured to regulate distribution of the fluid stream through the flowpath in a direction transverse to the principal direction as a function of temperature. In one example the flowpath boundary is formed by liner panels and the SCA's are linear elements that elongate at a temperature TH which is higher than T**0** thereby distending the spacer and reducing its resistance to fluid flow. One suitable shape change material is a nickel/titanium alloy known as NiTiNOL.

35 Claims, 27 Drawing Sheets